

REMARKS

The Office Action dated August 10, 2007 has been received and carefully noted. The following remarks are submitted as a full and complete response thereto. Claims 1-28 are submitted for consideration.

Claims 1-28 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Publication No. 2003/0086413 to Tartarelli (hereinafter Tartarelli). The rejection is traversed as being based on a reference that neither teaches nor suggests the novel combination of features clearly recited in claims 1-28.

Claim 1, upon which claims 2-7 depend, recites a method including receiving a packet and determining a number of tokens in a token bucket. The method also includes calculating a probability for marking the received packet with a precedence level when the number of tokens in the token bucket is between a first threshold and a second threshold and marking packet for a particular forwarding treatment using at least one token bucket.

Claim 8, upon which claims 9-14 depend, recites a packet marking system including a receiving engine capable of receiving a packet for marking. The system also includes a marker engine, communicatively coupled to the receiving engine, capable of determining the number of tokens in a token bucket. The system further includes a probability engine, communicatively coupled to the marker engine, capable of calculating a probability for marking the received packet with a precedence level when the number of tokens in the token bucket is between a first threshold and a second threshold. The

marking engine is configured to mark packet for a particular forwarding treatment using at least one token bucket.

Claim 15 recites a computer-readable medium having stored thereon instructions for a processor to execute a method. The method includes receiving a packet, and determining a number of tokens in a token bucket. The method also includes calculating a probability for marking the received packet with a precedence level when the number of tokens in the token bucket is between a first threshold and a second threshold and marking packet for a particular forwarding treatment using at least one token bucket.

Claim 16 recites a system including means for receiving a packet and means for determining a number of tokens in a token bucket. The system also includes means for calculating a probability for marking the received packet with a precedence level when the number of tokens in the token bucket is between a first threshold and a second threshold. The system further includes means for marking packet for a particular forwarding treatment using at least one token bucket.

Claim 17, upon which claims 18-21 depend, recites a method including receiving a packet and determining a number of tokens in a first token bucket. The method also includes determining a precedence value for marking the packet based on the determined number of tokens. The method further includes upgrading the determined precedence value to a higher precedence value when a pre-specified number of previously received packets were marked with the same determined precedence value and marking packet for a particular forwarding treatment using at least one token bucket.

Claim 22, upon which claims 23-26 depend, recites a packet marking system including a receiving engine capable of receiving a packet and a marker engine, communicatively coupled to the receiving engine, capable of determining a number of tokens in a first token bucket and capable of determining a precedence value for marking the packet based on the determined number of tokens. The system also includes an upgrade engine, communicatively coupled to the marker engine, capable of upgrading the determined precedence value to a higher precedence value when a pre-specified number of previously received packets were marked with the same determined precedence value. The marking engine is configured to mark packet for a particular forwarding treatment using at least one token bucket.

Claim 27 recites a computer-readable medium having stored thereon instructions to execute a method. The method includes receiving a packet and determining a number of tokens in a first token bucket. The method also includes determining a precedence value for marking the packet based on the determined number of tokens and upgrading the determined precedence value to a higher precedence value when a pre-specified number of previously received packets were marked with the same determined precedence value. The method further includes marking packet for a particular forwarding treatment using at least one token bucket.

Claim 28 recites a system including means for receiving a packet and means for determining a number of tokens in a first token bucket. The system also includes means for determining a precedence value for marking the packet based on the determined

number of tokens. The system further includes means for upgrading the determined precedence value to a higher precedence value when a pre-specified number of previously received packets were marked with the same determined precedence value and means for marking packet for a particular forwarding treatment using at least one token bucket.

As outlined below, the cited reference of Tartarelli does not teach or suggest the all of the elements of the pending claims.

Tartarelli discloses a method of transmitting data from customers (C1, C2, C3, C4, C5, C6, C7, C8, C9, C10) over a computer network, in particular over the Internet, where the data to be sent is split into packets, in particular into IP packets. Each packet is marked by one of at least two states (IN, OUT) and where the states (IN, OUT) determine which packets are dropped first, if packets are dropped during transmission. The marking of the packet with a state of high drop precedence (OUT) is based on a random probability (p). See at least the Abstract of Tartarelli.

In FIG. 4 of Tartarelli, a flow diagram shows the marking of a packet. When the packet enters the network, the token bucket algorithm of FIG. 2 first checks if the packet is within the assigned maximum bandwidth CIR. To this end, the packet length L is compared with the token bucket occupancy b . If the value of the packet length L is greater than the value of the token bucket occupancy b , the packet is marked OUT. If the token bucket occupancy b has enough bytes, the random probability p determines whether the packet is marked IN or OUT. If the probability p is greater than a random

number u evenly distributed between 0 and 1, the packet is marked OUT; otherwise it is marked IN. If the token bucket is empty, all packets are marked OUT, independently of the random probability p . See paragraph 0064 of Tartarelli.

Tartarelli further discloses that the problem of stabilizing the token bucket occupancy b can be achieved by an additional marking scheme on the basis of the random probability p . The problem of stabilizing the token bucket occupancy b can be expressed as having the time derivative of the token bucket occupancy $\{\dot{b}\}$ equal to 0: where $\{\dot{b}\} = CIR - r(t) = 0$, where the token bucket occupancy b is greater than 0 and smaller than the token bucket size B , where b is the token bucket occupancy, B is the bucket size, $r(t)$ is the sending rate of the customer and the CIR is the contracted maximum bandwidth of the customer. See paragraph 0065 of Tartarelli.

Applicants submit that Tartarelli does not teach or suggest each of the elements of the pending claims. Each of the pending claims, in part, recites calculating a probability for marking the received packet with a precedence level when the number of tokens in the token bucket is between a first threshold and a second threshold. Tartarelli does not teach or suggest this feature.

There does not seem to be any teaching in the cited sections of Tartarelli of a first and second threshold. Rather, the cited sections of Tartarelli teach that if the token bucket occupancy b has enough bytes, the random probability p determines whether the packet is marked IN or OUT. Paragraph 0064 of Tartarelli also teaches that if the **probability p** is greater than a random number u evenly distributed between 0 and 1, the

packet is marked OUT; otherwise it is marked IN. Paragraph 0064 of Tartarelli further teaches that if the token bucket is empty, all packets are marked out independently of the **random probability** p . However, there is no teaching or suggestion in the cited sections of Tartarelli of **calculating** a probability for marking the received packet with a precedence level when the number of tokens in the token bucket is between a first threshold and a second threshold.

Contrary to the teachings of Tartarelli, in the present invention as recited in the claims, packets are not randomly dropped. Instead, in the presently pending claims, a probability for marking the packet is calculated. There is no teaching or suggestion in the cited section of Tartarelli of calculating a probability for marking the received packet with a precedence level. Furthermore, there is no teaching or suggestion in Tartarelli that the packets are marked with a precedence level when **the number of tokens in the token bucket** is between a first threshold and a second threshold. Instead in Tartarelli, the packets are randomly marked as IN or OUT, if the token bucket occupancy b has enough bytes.

Each of the pending claims also recites, in part, marking packet for a particular forwarding treatment using at least one token bucket. Paragraphs 0074-0076 of Tartarelli discloses that Tartarelli relies on early notification of TCP sources of upcoming congestion via “out-marking” based on the random probability p . There is no teaching or suggestion in the cited sections of Tartarelli of marking packet for a particular forwarding treatment **using at least one token bucket**, as recited in the pending claims. Thus

Applicants respectfully asserts that the rejection under 35 U.S.C. §102(e) should be withdrawn because Tartarelli fails to teach or suggest each feature of claims 1, 8, 15-17, 22 and 27-28 and hence, dependent claims 2-7, 8-14, 18-21 and 23-26 thereon.

As noted previously, claims 1-28 recite subject matter which is neither disclosed nor suggested in the prior art references cited in the Office Action. It is therefore respectfully requested that all of claims 1-28 be allowed and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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Enclosures: Petition for Extension of Time
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